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## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION III

841 Chestnut Building  
Philadelphia, Pennsylvania 19107SUBJECT: Hydrolysis of CS<sub>2</sub>

DATE: AUG 12 1988

FROM: Gail Caron, Fate and Transport Specialist  
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The evidence for hydrolytic degradation of CS<sub>2</sub> presented in the July 28, 1988 memo from Geraghty and Miller is probably not applicable to environmental contamination. Moreover, the references cited in support of hydrolysis of CS<sub>2</sub> are outdated and rather obscure.

Carbon disulfide exhibits a low reactivity with water; hydrolysis, therefore, would not be considered a significant environmental fate pathway. The statement in the RI report that hydrolysis is the primary mechanism responsible for the apparent decrease in CS<sub>2</sub> concentration in the waste basin is not warranted.

The RI report states that the half-life for CS<sub>2</sub> at pH 9 is 1.1 years. No reference for this is provided. A discussion was held via telephone on Aug. 10 with Dr. J.J. Ellington at EPA's Athens Laboratory. Dr. Ellington is a hydrolysis expert. According to Dr. Ellington, the half-life for hydrolytic degradation of CS<sub>2</sub> under basic conditions at 25°C is greater than 10.9 years.

While strongly alkaline conditions may exist in the Avtex basins, it is unlikely that pH values above 9 would exist in groundwater. The extent of CS<sub>2</sub> hydrolysis in groundwater would be expected to be even less than that in the basins. Therefore, the statements concerning environmental fate of CS<sub>2</sub> presented in the RI are scientifically unsound, and should be disregarded.

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